

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Date: December 5, 2003

In re Application of:

DAVID J. EDLUND, WILLIAM A. PLEDGER and
R. TODD STUDEBAKER

Filed : December 5, 2003

For : HYDROGEN PURIFICATION MEMBRANES,
COMPONENTS AND FUEL PROCESSING SYSTEMS
CONTAINING THE SAME

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §§ 1.56, 1.97, and 1.98

Applicants are submitting this Information Disclosure Statement pursuant to 37 C.F.R. §§ 1.56, 1.97, and 1.98 to disclose to the Patent Office the patents, publications, applications, and/or other references listed on the enclosed, completed PTO-1449 forms. The filing of this Information Disclosure Statement should not be construed as a representation that a search has been made or as an admission that the listed references are prior art for this application. Applicants respectfully request that the listed references be expressly considered during prosecution of the application, and that the references be made of record therein and appear among the "references cited" on any patents issuing therefrom.

This Information Disclosure Statement includes 20 pages of PTO-1449 forms; however, it does not include copies of the references listed on the forms, as permitted under 37 C.F.R. § 1.98(d), because copies already were provided in earlier U.S. applications (Serial No. 10/430,110, Serial No. 10/371,597, now U.S. Patent No. 6,632,270, Serial No. 10/027,509, now U.S. Patent No. 6,537,352, Serial No. 10/003,165, now U.S. Patent No. 6,458,189, Serial No. 09/839,997, Serial No. 09/618,866, now U.S. Patent No. 6,547,858 and Serial No. 09/967,172, now U.S. Patent No. 6,494,937) that are relied on here for an earlier effective filing date under 35 U.S.C. § 120.

Although resubmission of print copies of the references listed on the enclosed PTO-1449 forms is not required, the Examiner is invited to contact Applicants' undersigned attorney if print copies of the previously submitted references would be helpful to advance prosecution of the present application.

A concise explanation of the relevance of each listed reference not in the English language follows:

Japanese Patent No. 45-14404 was listed on the face sheet to U.S. Patent No. 5,888,273 and no translation or English language abstract was provided. The patent appears to disclose a gas purification unit having a plurality of membrane tubes 1 through which a feed stream 4 is separated into streams 3C and 6.

Japanese Patent No. 45-2642 was listed on the face sheet to U.S. Patent No. 5,888,273 and no translation or English language abstract was provided. The patent appears to disclose a gas purification unit in which a feed stream 3 is passed through several passages to separation membranes, where the feed stream is separated to form streams 4 and 17. Applicant understands that reference numeral 1 refers to a flange, reference numeral 2 refers to a base, reference numeral 3 refers to a source gas introduction line, reference numeral 4 refers to a gas exhaust line, reference numeral 5 refers to a cylinder, reference numeral 6 refers to a guide structure, reference numeral 7 refers to an impure gas introduction control, reference numeral 8 refers to a square pipe, reference numeral 9 refers to a square-shaped hydrogen permeable board, reference numeral 10 refers to a palladium alloy membrane, reference numeral 11 refers to a support board, reference numeral 12 refers to a peripheral weld, reference numeral 13 refers to a pure hydrogen extractor, reference numeral 14 refers to a flange, reference numeral 15 refers to a pure hydrogen mixture chamber, reference numeral 16 refers to a passage member, reference numeral 17 refers to a pure hydrogen mixture extraction nozzle, reference numeral 18 refers to a cover, reference numeral 19 refers to an electric heater, reference numeral 20 refers to a source gas preparatory heating portion for heating gas outside the outer wall of the square pipe and inside the inner wall of the circular pipe, and reference numeral 21 refers to an insert for an electric heater to regulate the temperature of the pure hydrogen permeable cell.

Japanese Patent No. 57-145276, for which Applicants do not have an English-language abstract or translation, appears to disclose a schematically illustrated system that includes a burner 5 and various valves 8. Applicants are not aware of the function of the other components.

Japanese Patent No. 1-145302 was listed on the face sheet to U.S. Patent No. 5,888,273 and no translation or English language abstract was provided. The patent appears to disclose a gas purification unit in which a feed stream 1 is passed through several passages and separated into streams 2 and 3.

Japanese Patent No. 1-145303 was listed on the face sheet to U.S. Patent No. 5,888,273 and no translation or English language abstract was provided. The patent appears to disclose a gas purification unit in which a feed stream 1 is passed through several passages and separated into streams 2 and 3.

Japanese Patent No. 4163860 appears to disclose a schematically illustrated system that includes a controller 26.

Japanese Patent No. 6-134244 was listed on the face sheet to U.S. Patent No. 5,888,273 and no translation or English language abstract was provided. The patent appears to disclose a gas purification unit in which a feed stream is separated into plural streams.

PCT International Patent Application No. PCT/DE97/00880 (WO 97/43796) claims to disclose a membrane reactor that catalytically reacts methanol to produce a product stream containing hydrogen, carbon dioxide and carbon monoxide, filters carbon dioxide from the reaction product stream, and

then catalytically converts the carbon monoxide methane into methane prior to delivery of the product stream to a fuel cell.

English language abstracts for Japanese Patent No. JP 1-26290, Japanese Patent No. JP 4-338101 and PCT Patent Publication No. WO 00/04600 are already of record in the previously cited applications identified above.

This Information Disclosure Statement is being filed with the application. Therefore, in accordance with 37 C.F.R. § 1.97(b), no fee or statement under 37 C.F.R. § 1.97(e) is required.

Please contact the undersigned with any questions or comments regarding this Information Disclosure Statement.

Respectfully submitted,

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| FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION | | DOCKET NUMBER NPW 301K | APPLICATION NUMBER |
| | | APPLICANTS DAVID J. EDLUND, WILLIAM A. PLEDGER and R. TODD STUDEBAKER | |
| | | FILING DATE December 5, 2003 | GROUP ART UNIT |

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